

Strategic Plan for Management of Trout Fisheries in Pennsylvania

2025-2029



Pennsylvania Fish and Boat Commission

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Introduction

The foundation for management of Pennsylvania's cold-water aquatic resources lies in development of fisheries management objectives with strategies based on the social, biological, and physical characteristics of the waters. Utilizing results of fish population assessments and angler surveys, fisheries management objectives developed by the Division of Fisheries Management (DFM) guide Bureau of Fisheries (Fisheries Management, Habitat Management, and Environmental Services divisions) and Bureau of Hatcheries (BOH) operations in a coordinated effort to deliver opportunities that provide high-quality cold-water recreational angling experiences in addition to fulfillment of the stewardship mission of the Pennsylvania Fish and Boat Commission (PFBC).

The *Strategic Plan for Management of Trout Fisheries in Pennsylvania 2025-2029* (Trout Plan) will guide specific goals and objectives of the PFBC's trout management program. The goal of this plan is to ensure appropriate protection is afforded to Pennsylvania's wild trout resources and that fisheries provided through the management of wild trout and stocking of adult and fingerling trout provide high-quality angling opportunities in Pennsylvania.

For management purposes, the state is delineated by watersheds and there are nine DFM areas (Figure 1). Eight of the management areas are responsible for managing the Commonwealth's inland salmonid fisheries, while the ninth, the Lake Erie Unit, manages the open water Lake Erie salmonid fisheries. The BOH operates 10 state fish hatcheries that are responsible for the propagation and procurement of salmonid species necessary to meet management objectives (Figure 1).

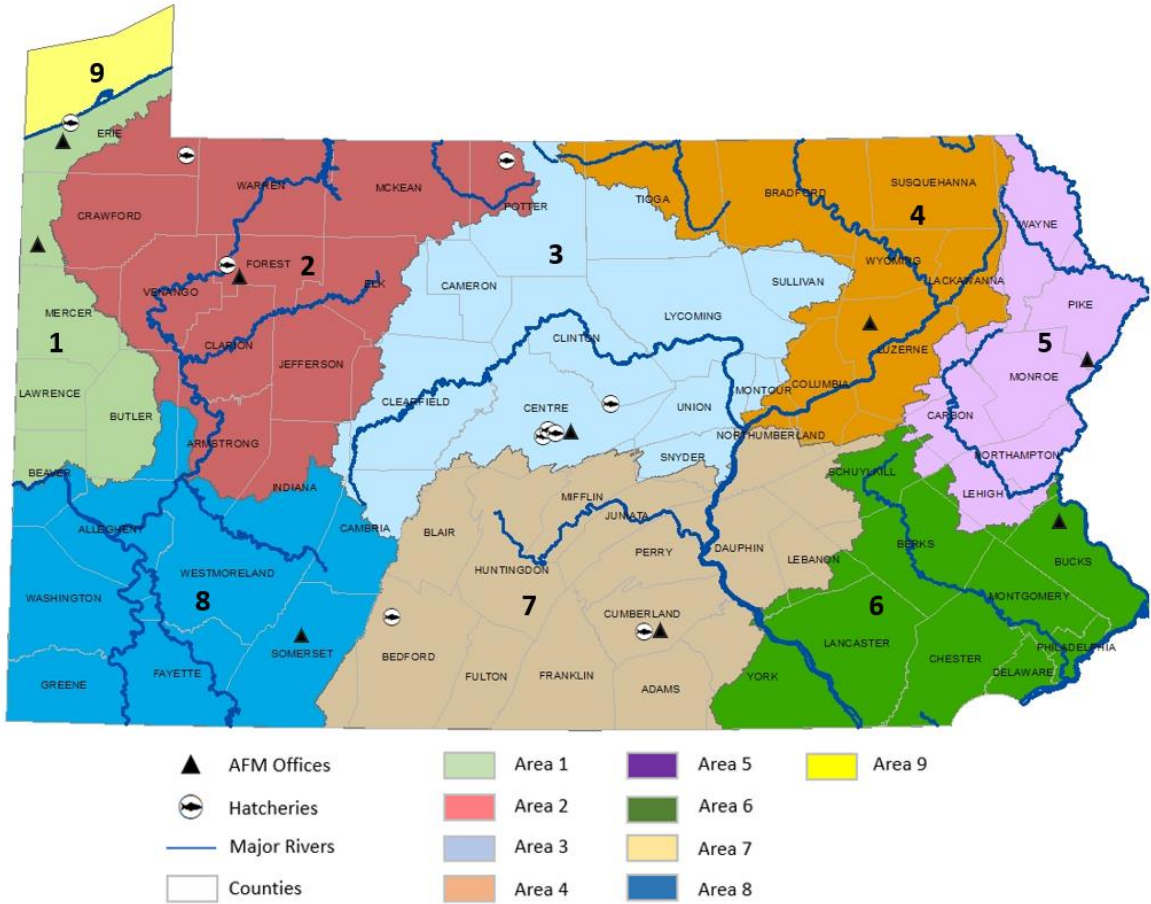


Figure 1. Location map for Fisheries Management Areas and State Fish Hatcheries.

Pennsylvania is fortunate to have approximately 86,000 miles of flowing water and as of October 2024, the known wild trout stream resource in Pennsylvania consists of 5,996 streams representing over 17,760 stream miles that support naturally reproducing trout populations. This resource is diverse, however, with habitats ranging from small headwater streams to large, limestone spring-influenced streams. Although the majority of wild trout streams in Pennsylvania are located in the northcentral region of the state, reproducing trout populations have been documented in 64 of the state’s 67 counties (Figure 2). Class A waters contain the most abundant wild trout populations, and with rare exceptions, the PFBC manages these stream sections solely for the perpetuation of the wild trout fishery with no stocking. Additionally, Class A wild trout streams qualify for more stringent water quality protection standards by the Pennsylvania Department of Environmental Protection (DEP). As of October 2024, the PFBC has officially designated 1,236 stream sections, representing 3,267 stream miles, as Class A wild trout streams (Figure 2).

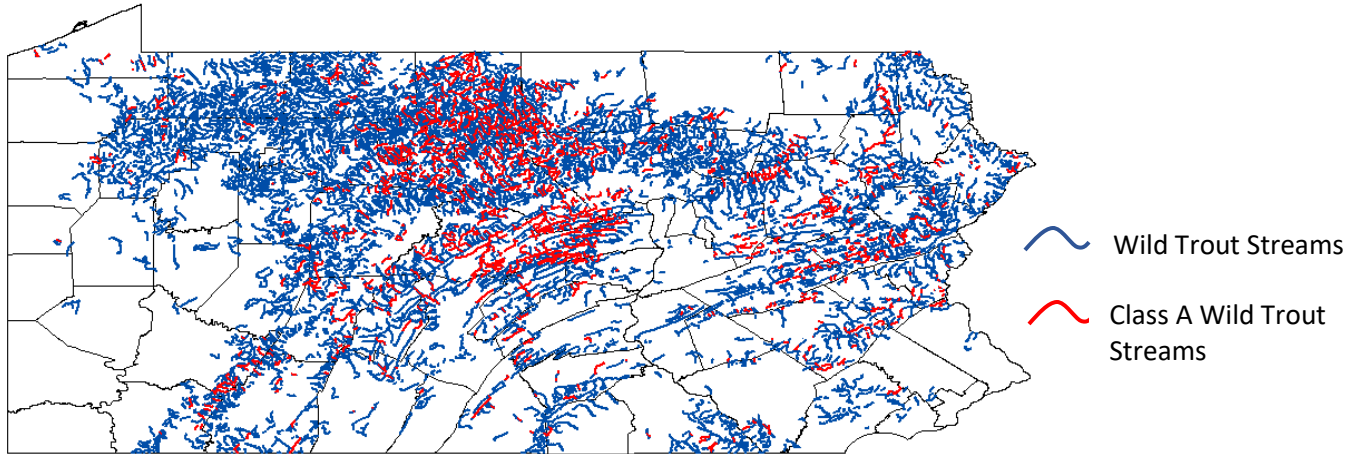


Figure 2. Statewide distribution of wild trout streams and Class A wild trout stream sections.

In addition to managing streams for wild trout, the PFBC also maintains a Stocked Trout Waters (STW) program that generates seasonal recreational angling opportunities where they otherwise would not exist. As part of the STW program, the PFBC annually produces 3.2 million adult trout to stock nearly 1,100 stream sections totaling over 4,700 stream miles and approximately 130 lakes comprising over 7,000 acres (Figure 3).

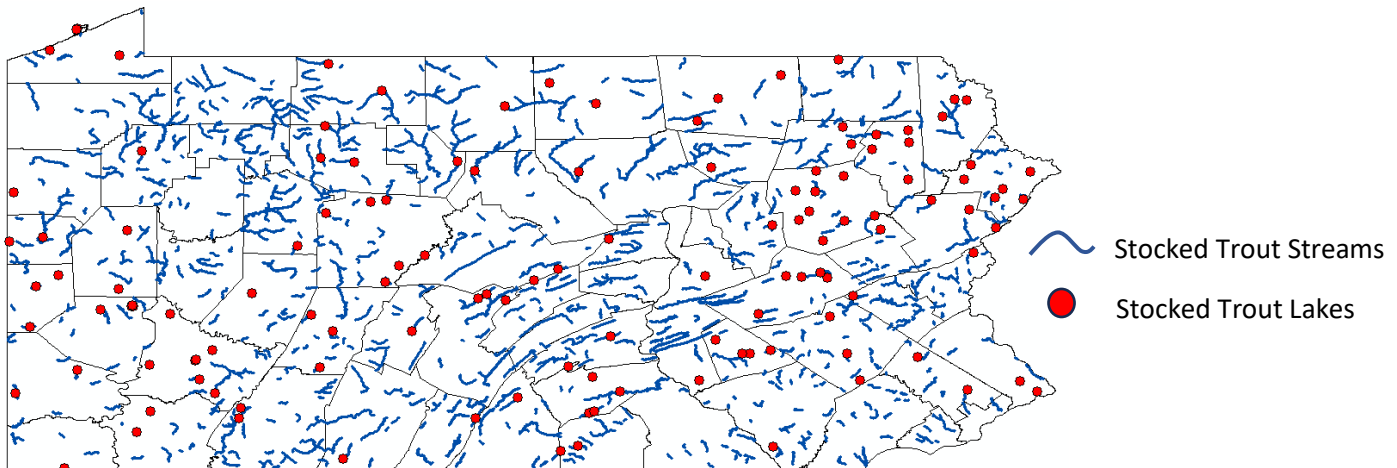


Figure 3. Statewide distribution of stream sections and lakes included in the Pennsylvania Fish and Boat Commission's Stocked Trout Waters program.

Lake Erie and its tributaries provide a unique salmonid fishery. The PFBC annually stocks steelhead *Oncorhynchus mykiss* into Presque Isle Bay and 12 stream sections, creating over 150 miles of streams that support a world-class steelhead fishery and six stream sections totaling over 40 stream miles are included in the STW program (Figure 3). Brown Trout *Salmo trutta* and Lake Trout *Salvelinus namaycush* are also stocked in the open water of Lake Erie. Through representation on the Lake Erie Committee, the PFBC cooperatively manages salmonids in the Lake Erie watershed with other member jurisdictions.

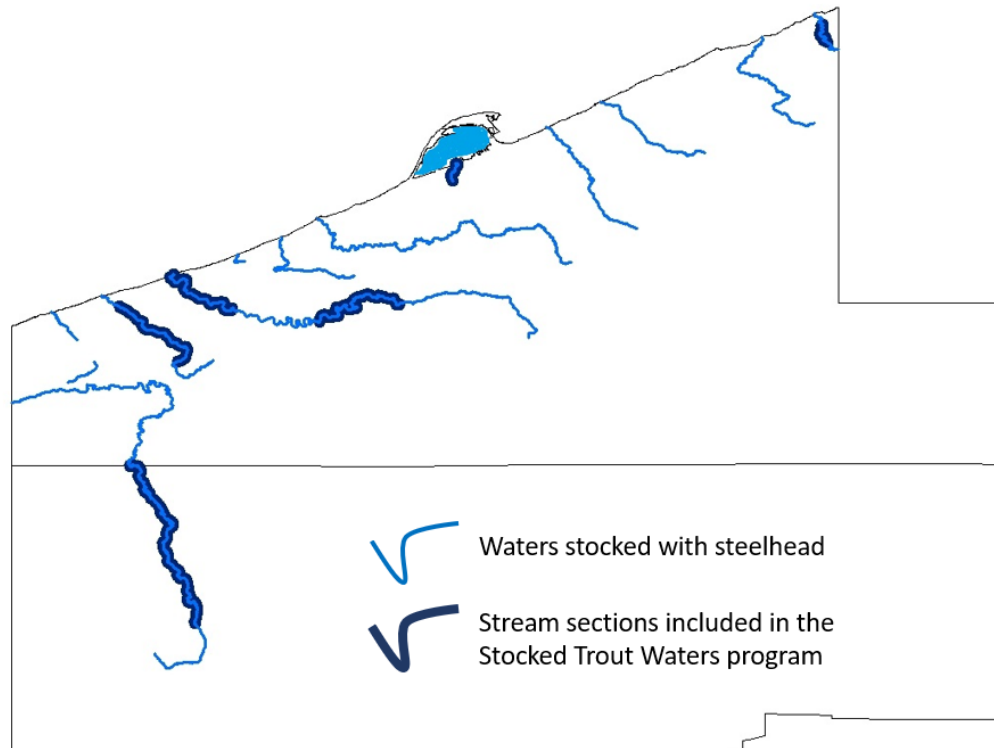


Figure 4. Lake Erie tributaries included in Pennsylvania Fish and Boat Commission’s steelhead and Stocked Trout Waters programs.

Pennsylvania’s cold-water resources are continuously threatened by human development, resource extraction, and climate change. Anthropogenic activities alter land use, increase the amount of impervious surfaces, and affect stormwater runoff and groundwater recharges. Extracting resources such as natural gas, coal, oil, minerals, and timber can impact water quality, water temperatures, riparian zones, and land use throughout watersheds. Statewide climate change effects include warmer air and water temperatures, increased precipitation, and intermittency of precipitation events contributing to increased drought frequency. The PFBC’s Climate Action Plan is available at [PFBC Climate Action Plan](#). Properly classifying Pennsylvania’s trout resources is critical for long-term conservation.

To develop this plan, PFBC staff from the bureaus of Fisheries; Hatcheries; Outreach, Education, and Marketing; Law Enforcement; and Administration reviewed previous trout plans to identify any outstanding priority issues as well as new issues that warrant attention. In February 2024, PFBC commissioners were given the opportunity to review a draft outline of the plan and provide feedback. A draft outline of Trout Plan was presented at the July 2024 Fisheries and Hatcheries Committee meeting, and the draft Trout Plan was presented at the October 2024 Fisheries and Hatcheries Committee meeting. The draft plan was shared with commissioners and posted on the PFBC website from October through November 2024 for public review. Feedback was provided from 46 individuals and/or organizations. Staff reviewed all input received. After considering all feedback received, final edits were made to the plan.

The 2025-2029 Trout Plan is the PFBC's fourth trout management plan. The previous three plans encompassed the periods of 2010-2014, 2015-2017, and 2020-2024 [Strategic Trout Plans](#). This plan focuses on ongoing objectives from previous plans and adds new objectives. The Trout Plan is divided into two sections: 1) Management of Pennsylvania's Wild and Stocked Trout Resources and 2) Management of Trout in Lake Erie and Tributary Streams. The two sections comprise of 15 topics and 48 objectives to guide trout management.

During the previous Trout Plan, staff made significant progress addressing high priority issues. Multiple trout regulation changes were implemented that included adjustments to the Trophy Trout programs, adoption of the Trout Slot Limit programs, a new species-specific Miscellaneous Special Regulation applied to 12 Class A wild trout stream sections that are also included in the STW program, new species-specific salmonid regulations for Lake Erie and its tributaries, and returning to a single statewide opening day of trout season. Staff conducted statewide angler opinion and economic expenditures surveys in 2023 to collect updated data to guide future management strategies. Staff in the Division of Habitat Management continued to partner with federal, state, and local agencies and non-governmental organizations to implement stream and riparian corridor best management practices such as the removal of obsolete dams, the installation of stream habitat improvement structures, planting riparian buffers, and aquatic organism passage improvements at road stream crossings. Over 100 habitat improvement projects were completed on approximately 20 miles of trout streams. The Notice of Stocking was implemented to collect data on the number, species, and location of fish being introduced into the waters of the Commonwealth and to provide a mechanism to reduce the introduction and distribution of aquatic invasive species (AIS). The PFBC also officially designated 643 streams as wild trout streams, 273 stream sections as Class A wild trout streams, and 39 stream sections as Wilderness Trout Streams. Strategies focused on enhancing the STW program were also achieved and include increasing the number of brood and trophy golden Rainbow Trout allocated to waters, species composition adjustments to increase recreational opportunities, land easement acquisitions that provide long-term access for anglers, outreach campaigns to promote the Commonwealth's stocked trout angling opportunities, among others. The accomplishments of the 2025-2029 Trout Plan will be evaluated annually and reported periodically throughout the duration of the plan.

In addition to the Trout Plan, the *Operational Guidelines for the Management of Trout Fisheries in Pennsylvania Waters, 5th Edition* (Operational Guidelines) guides and directs staff activities and standard operating procedures to implement the PFBC's stocked trout, wild trout, and trout special regulation programs, among other trout management activities and is available at [Operational Guidelines 5th Edition](#).

Management of Pennsylvania's Wild and Stocked Trout Resources



Topic 1: Evaluation of Pennsylvania's cold-water resources to guide management and protection.

Objective 1.1: Maintain and diversify the Unassessed Waters Initiative. PFBC staff and the Unassessed Waters Initiative cooperators will continue to survey high priority unassessed streams. Approximately 49,000 of the 62,275 streams in the Commonwealth have not been sampled. As a result, the total number of streams that support wild trout populations and/or provide habitat critical to supporting wild trout in Pennsylvania is unknown, which leads to inadequate protection of the unassessed streams.

Strategy 1: Continue to build partnerships, identify colleges, universities, and non-profits to conduct sampling, and expand geographic regions for the program.

Strategy 2: PFBC staff and Unassessed Waters Initiative partners will annually survey priority unassessed streams.

Strategy 3: Investigate opportunities to advance data collection to better manage wild trout populations.

Objective 1.2: Evaluate cold-water streams to determine if they support Class A wild trout populations. There are numerous stream sections that may support Class A wild trout populations which have not been identified and appropriately designated as Class A wild trout streams by the PFBC. This leads to inadequate water quality protection for these streams and inconsistent application of fisheries management strategies.

Strategy 1: PFBC staff will sample priority stream sections to determine if they support Class A wild trout populations and those that do will be recommended to the Commission for designation.

Objective 1.3: Investigate adding stream sections to the Wilderness Trout Streams program. Numerous streams have been identified through the Unassessed Waters Initiative and PFBC wild trout stream re-inventories that may meet the criteria for inclusion into the program. It is the PFBC's intent to advocate proper watershed management to maintain the wilderness setting and to advance and seek the highest water quality standards through the DEP.

Strategy 1: Continue to identify stream sections to be included in the Wilderness Trout Streams program and those that do will be recommended to the Commission for designation.

Objective 1.4: Evaluate waters currently managed under special regulations to ensure these waters are meeting management objectives. The PFBC currently manages 83 wild trout stream sections, 137 stocked trout stream sections, and 50 lakes under special regulations. Ensuring regulations are protecting the resource and meeting social objectives is critical to maintain the integrity of the various special regulation programs.

Strategy 1: PFBC staff will sample priority waters managed under special regulations to collect and evaluate data to determine if the waters are meeting the program's management objectives.

Strategy 2: PFBC staff will evaluate data for new waters that biologically and socially meet special regulation program objectives and those that do will be recommended to the Commission for designation.

Objective 1.5: Evaluate the use of regulations to increase protection and conservation of wild Brook Trout (*Salvelinus fontinalis*). Water quality, habitat degradation, and climate change effects continue to be the primary threats to wild Brook Trout; however, there may be certain areas where Brook Trout-specific regulations are warranted to ensure adequate protection and conservation is afforded to Pennsylvania's only native stream-dwelling salmonid.

Strategy 1: Assess the use of regulations on specific areas to provide wild Brook Trout populations additional protection.

Objective 1.6: Develop a monitoring program to annually track the status and trends of wild trout populations across Pennsylvania. Partner with the United States Fish and Wildlife Service and the Pennsylvania Cooperative Fish and Wildlife Research Unit to evaluate the rate of wild trout population loss or growth, overall population condition, and the comprehensive status of wild trout resources throughout the state.

Strategy 1: Establish a program to evaluate existing long-term monitoring data and expand data collection as needed.

Objective 1.7: Evaluate the effects of hook type and configuration on high use wild trout fisheries. The sublethal effects (e.g., reduced growth rates, physical deformities, reduced population size structure) of repeated catch and release in Pennsylvania's high use wild trout fisheries are not fully understood.

Strategy 1: Evaluate data recently collected through biological and angler surveys to better understand the use of hook type and configuration on high use streams and whether adjustments to regulations may benefit these fisheries.

Objective 1.8: Evaluate existing fish stocking data collection procedures to ensure adequate information is being provided to the PFBC. Information collected through the Notice of Stocking, interstate transportation requests, Special Activities Permits, among others, has led to an increased awareness of non-PFBC stockings occurring throughout the Commonwealth.

Strategy 1: Evaluate fish stocking data collection applications, forms, and modules to allow the PFBC to facilitate amendments to the various processes in order to meet PFBC and stakeholder needs.

Strategy 2: Assess the number, species, and location of fish being introduced into the waters of the Commonwealth from non-PFBC stockings to monitor threats and impacts to the Commonwealth's trout resources.

Topic 2: Increase and improve public access to Pennsylvania's wild and stocked trout fisheries to provide high-quality, accessible angling opportunities throughout the Commonwealth.

Objective 2.1: Establish partnerships with state, local, and/or non-profit entities to improve public access along stocked trout lakes and wild and stocked trout streams. Improvements may include long-term easements or ownership of riparian zones, improved parking areas, construction of trails, boat/non-powered ramps, among others.

Priority will be placed on streams and lakes that support high-use and/or high-quality fisheries.

Strategy 1: Increase intra-agency coordination to develop a list of prioritized wild trout streams, stocked trout streams, and stocked trout lakes to focus efforts for property acquisitions and easements.

Strategy 2: Build relationships with other stakeholders and partners to optimize opportunities to increase and improve public access.

Strategy 3: Identify reservoirs in public or private ownership to gauge interest in allowing public access for fishing and boating.

Objective 2.2: Evaluate feasibility to streamline property acquisition. Work to establish resources that would allow the PFBC to be prepared for land easements and acquisitions when they become available.

Strategy 1: Secure internal PFBC resources that can be utilized to expedite the property acquisition process on high priority waters.

Strategy 2: Identify additional partners and resources that can be used for land easements and acquisitions.

Strategy 3: Develop a prioritized list of waters to target for easements and acquisitions.

Topic 3: Increase data collection on the distribution and prevalence of fish diseases and pathogens to ensure the long-term conservation of Pennsylvania's cold-water resources.

Objective 3.1: Establish a cold-water fish health monitoring program. The PFBC does not have a fish health monitoring program in place to track the distribution and prevalence of existing and unknown fish diseases in cold-water fish populations, resulting in knowledge gaps on the potential impacts they are having on the Commonwealth's cold-water aquatic resources. Adopting a formal fish health monitoring program will require intra- and inter-agency coordination.

Strategy 1: Incorporate structured fish health screening into the Bureau of Fisheries' stream surveys for Pennsylvania's five major drainages.

Objective 3.2: Evaluate existing fish health data collection methods to ensure adequate information is being provided to the PFBC. Information collected through

the Notice of Stocking, interstate transportation requests, internal fish health testing that includes state fish hatcheries and cooperative nurseries, among others, has led to an increased awareness of the potential for the PFBC to evolve its data collection process to address future fish health concerns.

Strategy 1: Continue to conduct annual fish health inspections at all trout-rearing PFBC State Fish Hatcheries and cooperative nurseries.

Strategy 2: Conduct diagnostic fish health investigations as needs arise.

Strategy 3: Review all Pennsylvania Department of Agriculture (PDA) applications for dealers of live fish, live baitfish, live fish bait, reptiles, amphibians, and other aquatic organisms.

Topic 4: Ensure water quality, quantity, and habitat protection is provided to Pennsylvania's cold-water resources through regulatory and permitting reviews.

Objective 4.1: Collaborate with the DEP to regularly review the Chapter 93 Designated Use on all wild and stocked trout streams. As a result of wild trout, Class A, and/or wilderness trout stream designations, and modifications to the streams included in the Stocked Trout Waters program, some streams may warrant redesignation of their Chapter 93 Designated Use.

Strategy 1: Update the PFBC and DEP data sharing process to ensure newly designated stream sections by the PFBC are receiving appropriate and timely protections by the DEP.

Objective 4.2: Improve and develop relationships with partners to maintain or improve natural flow regimes in flowing waters. Reservoir operations, surface and ground water withdrawals, and discharges may cause potential threats to trout populations, cold-water aquatic species, instream habitat, and ecological conditions.

Strategy 1: Collaborate with partners to explore modifying and/or improving reservoir operations (quantity of water released, depth water is released from, duration of water released, etc.) to establish, maintain, and/or improve cold-water fish communities.

Strategy 2: Review water allocation permits, quarterly dockets, water withdrawals, and discharges to ensure flow and thermal regimes, water quality, and cold-water aquatic habitat are not significantly impacted.

Strategy 3: Evaluate current and proposed hydropower operations in cold-water environments to ensure flow and thermal regimes, water quality, and habitat are not significantly impacted.

Strategy 4: Advise other government agencies, nongovernmental organizations (NGOs), and other stakeholders to advocate for the protection and/or improvement of flow regimes that sustain cold-water fisheries resources in Pennsylvania.

Objective 4.3: Collaborate with the DEP to monitor the prevalence of toxic substances and contaminants of concern in wild and stocked trout streams. Evaluate threats contaminants pose on the health of both wild and stocked trout, and the public.

Strategy 1: The PFBC will continue to participate in the Fish Consumption Advisory Technical Workgroup (Workgroup) to evaluate fish flesh data analysis of contaminants (e.g., per- and poly-fluoroalkyl substances [PFAS]) in tissue samples to inform issuance of fish consumption advisories.

Strategy 2: The PFBC will work with the DEP to prioritize sampling of fish tissue upon receiving information of suspected contamination.

Objective 4.4: Collaborate with the DEP to assure adequate fish passage is achieved at road/stream crossings for projects permitted under 25 Pa. Code Chapter 105 and ensure riparian buffers are protected and/or re-established for projects regulated by 25 Pa. Code Chapter 105 and 102 to the extent practical. Avoiding and minimizing impacts to cold-water resources during regulatory permit review is critical to protect water quality, aquatic connectivity, and habitat.

Strategy 1: The PFBC will continue to review permits and provide comments to improve regulatory guidance pertaining to fish passage and stream continuity that will improve habitat connectivity.

Strategy 2: The PFBC will continue to participate in statewide technical committees to inform policy and guidance on stream continuity and aquatic organism passage.

Strategy 3: The PFBC will work with the DEP to improve regulatory guidance and policy pertaining to the protection, establishment, restoration, and maintenance of riparian buffer zones to avoid, minimize, and mitigate impacts to water quality resulting from the development of floodplains/floodways along waters.

Objective 4.5: Collaborate with the DEP, project applicants, design professionals, and contractors to ensure activities authorized under 25 Pa. Code Chapter 105 are constructed in a way to avoid and minimize impacts to stocked and wild trout

resources. Carefully planned instream work activities ensure the protection of critical life stages of our wild trout resources as well as avoid conflicts with recreational users during high use periods.

Strategy 1: Define and apply instream work activities and seasonal restriction dates during permit review for wild trout and stocked trout streams.

Topic 5: Implement instream, riparian, and fish passage improvement projects on priority trout waters to enhance habitat, improve water quality, benefit wild trout populations, and increase angling opportunities.

Objective 5.1: Implement habitat projects to improve habitat and water quality in priority wild and stocked trout streams. Improving stream habitat can help maintain or increase wild trout populations where critical habitat across life-stages, suitable spawning substrate, water quality and/or temperature are limiting factors. Additionally, angling opportunity and fishing experiences can be enhanced by implementing stream habitat improvement projects.

Strategy 1: The PFBC and partners will complete instream habitat projects using habitat structures, random boulders, large wood, and other techniques to improve habitat and overhead cover, stabilize stream banks, and reconnect streams to their flood plain.

Strategy 2: The PFBC and partners will establish riparian buffers to restore habitat, provide stream shade, reduce sediment loads, and stabilize stream banks.

Objective 5.2: Identify, prioritize, and implement fish passage projects that remove or mitigate barriers to fish passage. Physical (e.g., dams and culverts) and chemical (e.g., acid mine drainage and temperature) barriers can prevent access to critical habitat such as spawning and nursery areas and thermal refugia, as well as disrupt natural movement behavior of trout.

Strategy 1: The PFBC and partners will collaborate to identify, prioritize, and implement projects (e.g., dam removals, culvert replacements, water quality improvements) that restore aquatic connectivity.

Objective 5.3: Characterize temporal changes in habitat quality in Pennsylvania trout waters. Habitat quality can degrade or improve through time, which may impact or benefit trout populations. Characterizing changes in habitat quality at long-term wild trout monitoring sites will help determine how these changes may be influencing the abundance and distribution of trout.

Strategy 1: Identify and implement an approach to characterize and monitor changes in habitat quality over time.

Objective 5.4: Document local and population level responses to habitat improvement projects. Where practical, monitor the effects of stream habitat improvement projects on wild trout fisheries to improve best management practices for future restoration efforts.

Strategy 1: PFBC staff will conduct surveys before and after stream habitat improvement projects at prioritized sites to monitor population responses to select stream habitat improvement projects.

Topic 6: Collect angler use, harvest, opinion, and economic data on Pennsylvania's wild and stocked trout fisheries to inform water-specific, regional, and statewide management strategies.

Objective 6.1: Conduct statewide angler opinion and economic surveys to evaluate Pennsylvania's wild and stocked trout fisheries. Statewide wild trout and stocked trout angler surveys to gauge angler use, harvest, and opinions were last conducted in 2004 and 2005, respectively. Updated information on angler use, harvest, and preferences on a statewide basis is critical to inform future management strategies.

Strategy 1: Implement a reoccurring multimodal statewide survey to provide insight on angler preferences and associated economic value of Pennsylvania's wild and stocked trout fisheries.

Strategy 2: Implement a statewide survey to determine angler effort, angler trips, catch and harvest by species, and economic value to guide statewide operations and management of Pennsylvania's wild and stocked fisheries.

Objective 6.2: Conduct water-specific creel surveys annually on high use wild trout streams and stocked trout waters. Water-specific surveys will allow the PFBC to quantify angler use, harvest, economic expenditures, and evaluate management strategies on high use fisheries.

Strategy 1: Develop a prioritized list of stream sections and conduct individual-water angler surveys annually to collect data and inform management strategies.

Topic 7: Minimize the impacts of AIS on Pennsylvania’s cold-water resources.

Objective 7.1: Continue to monitor Pennsylvania streams and lakes for high-priority AIS. Sampling Pennsylvania’s waters for new occurrences of AIS is important to understand the statewide distribution and potential vectors of AIS.

Strategy 1: Periodically monitor high-risk waters for the presence of AIS.

Strategy 2: Increase public awareness and reporting of suspected AIS in cold-water resources through educational outreach.

Strategy 3: Follow guidance in [Rapid Response Plan and Procedures](#) to respond to high priority infestations of AIS in cold-water streams and other habitats.

Objective 7.2: Support or initiate research to evaluate the risks and potential impacts of AIS to Pennsylvania’s cold-water streams. Overall impacts of AIS in cold-water streams are unknown. Collecting additional data through research projects will help better understand the threats of AIS.

Strategy 1: Provide technical advisement and support to partners conducting research projects.

Strategy 2: Provide verified data on AIS occurrences to partner databases, such as [Pennsylvania iMapInvasives](#) and the [USGS Nonindigenous Aquatic Species](#) program.

Objective 7.3: Improve hatchery operations and infrastructure to prevent and minimize occurrences of AIS in state fish hatcheries. Implemented projects will enhance hatchery infrastructure and protocols to continually improve upon existing biosecurity measures.

Strategy 1: Install or enhance raceway covers, predation netting, source water protection, etc., to increase biosecurity at hatchery facilities.

Topic 8: Promote Pennsylvania’s cold-water fisheries and expand stakeholder engagement through collaborative outreach and education efforts.

Objective 8.1: Expand and diversify the PFBC’s marketing, outreach, and promotion of wild and stocked trout opportunities. Organize statewide and regional campaigns to highlight angling opportunities and the importance of conservation of cold-water resources.

Strategy 1: Expand curriculum to offer developmental fishing technique programs, virtual trainings, and in-person classes to provide anglers with opportunities to enhance their skills.

Strategy 2: Host outreach events for anglers to practice new fishing techniques being developed through the educational programs and virtual trainings.

Strategy 3: Expand educational programs to emphasize the importance of conservation, water quality, and wild trout populations.

Objective 8.2: Maximize available cold-water resource content on the PFBC’s website and social media platforms. The statewide Pennsylvania Trout Angler opinion survey conducted in 2023 identified the agency’s website as the number one resource trout anglers utilized to find information which includes interactive maps, county guides, best fishing waters, *Pennsylvania’s Fishing Summary* book, and additional resources to provide the best information possible to anglers.

Strategy 1: Bolster education and outreach on Pennsylvania’s fisheries, the benefits of habitat improvement projects, and potential impacts of AIS.

Strategy 2: Improve interactive maps, best fishing waters, biologist reports, and additional resources on the agency’s website to effectively communicate with the public.

Topic 9: Optimize the production and use of stocked trout.

Objective 9.1: Investigate ways to improve the allocation of stocked trout with the intent to provide high-quality seasonal angling opportunities in waters that do not support quality wild trout populations. Current STW program allocation rates of adult and fingerling trout need to be reviewed and may need adjusted to address contemporary issues. Numerous trout angler surveys since 2005 have demonstrated the need to revisit current allocation rates to account for changes to stream access, property ownership (public vs. private land), and human population densities. New allocation categories developed within the framework of the current Operational Guidelines could provide flexibility in our program to achieve the best angling opportunities in a geographic region.

Strategy 1: Evaluate resource categories, allocation rates, stocking frequencies, and special cases to optimize stocked trout angling opportunities.

Objective 9.2: Investigate ways to improve fish culture practices and hatchery operations to optimize adult and fingerling trout production. Hatchery infrastructure projects will improve water management, fish health, and optimize fish growth.

Strategy 1: Implement projects at trout hatcheries that will help to improve rearing conditions, hatchery life support systems, and influent and effluent water qualities.

Strategy 2: Implement a new spawning protocol to maximize production, improve health and condition of eggs, and increase successful hatch rates.

Strategy 3: Improve hatchery operations and equipment to increase efficiency rearing trout to meet annual fish production requests.

Strategy 4: Investigate and implement avian predation deterrent measures to reduce avian activity in and around fish hatcheries.

Strategy 5: Develop educational fish culture resources to mentor new staff to optimize efficiency.

Strategy 6: Investigate rearing a new and/or increasing the use of an existing trout strain (e.g., Trout Lodge) in state hatcheries to optimize fish production and improve the health, growth, and quality of stocked trout.

Objective 9.3: Evaluate potential to utilize fingerling trout to establish put-grow-and-take fisheries. Fingerling stockings may provide an opportunity to provide high-quality fisheries at lower costs than stocking adult trout in some limited circumstances.

Strategy 1: Investigate the use of new trout strains and stocking procedures for fingerling trout stockings.

Strategy 2: Evaluate the success of waters currently being stocked with fingerling trout.

Objective 9.4: Evaluate intra-agency operations and procedures to improve efficiency of stocking adult trout. Concentrate adult trout stockings to the three weeks before and after the opening day of trout season to ensure the adult trout are available to anglers during the period of highest angler use.

Strategy 1: Improve the scheduling process across bureaus.

Strategy 2: Investigate the concept of rearing trout at Pleasant Mount and/or Tionesta hatcheries to increase stocking efficiency in waters close to each respective facility.

Strategy 3: Investigate a hatchery operations program that utilizes one hatchery or more to serve as a fingerling rearing facility. Fingerlings would be distributed to other hatcheries to serve as grow-out only locations.

Objective 9.5: Investigate the use of triploid trout in the PFBC's Stocked Trout Waters program. Triploid trout will eliminate potential genetic interactions with wild stocks and the possibility of hatchery trout successfully reproducing in the wild, protecting Pennsylvania's wild trout resources. Aquaculture studies have demonstrated that triploids can exhibit better growth rates and are less susceptible to diseases associated with spawning stress, potentially resulting in a cost-effective way to rear high-quality trout.

Strategy 1: PFBC staff will explore rearing triploid trout at hatcheries to evaluate growth rates and disease prevalence.

Objective 9.6: Investigate ways to improve stockings provided as part of the PFBC's Cooperative Nursery program (CNP). Cooperative nurseries produce over one-million stocked trout annually and like the PFBC's STW program, the CNP program must be optimized.

Strategy 1: PFBC staff will collaborate to determine the best use of cooperative nursery raised trout. Species composition changes at cooperative nurseries or with cooperative nursery stockings will provide better recreational angling, protect wild trout populations, and align CNP stockings with PFBC trout stocking strategies.

Strategy 2: Annually review the Cooperative Nursery Unit (CNU) Policy and update policy to address any changes in Title 58, CNU operating procedures, stocking procedures, and disease treatment/awareness.

Management of Trout in Lake Erie and Tributary Streams



Topic 10: Increase and improve public access to Lake Erie’s tributaries and coastline to provide high-quality, accessible angling opportunities.

Objective 10.1: Establish partnerships with state, local, and/or non-profit entities to improve public access along Lake Erie’s coastline and tributaries. Access improvements may include, but are not limited to improved parking areas, long-term access easements, and purchase of riparian lands.

Strategy 1: Build relationships with other stakeholders and partners to optimize opportunities to increase and improve public access.

Strategy 2: Identify additional partners and resources that can be used for land easements and acquisitions.

Strategy 3: Partner with local municipalities to extend the boating season by encouraging municipalities to leave docks in place longer into the fall and winter seasons.

Strategy 4: Develop a prioritized list of waters to target for easements and acquisitions.

Topic 11: Implement instream, riparian, and fish passage enhancement projects on priority tributaries to enhance habitat, improve water quality, and increase angling opportunity.

Objective 11.1: Identify, prioritize, and implement fish passage projects that remove or mitigate barriers to improve steelhead angling opportunities. Manmade and natural barriers can reduce the movement of steelhead upstream, limiting fishing opportunities above a barrier. Removing or mitigating barriers can help expand fishing opportunities and increase angler use.

Strategy 1: Implement the Lake Erie Tributary Fish Passage Plan. This includes maintenance and operation of the two existing fishways on Fourmile Creek, instream habitat alteration to allow upstream fish passage under a wider range of flow conditions, and applying lessons learned to other streams and blockages in the unique geological formations and substrates of the Lake Erie watershed.

Strategy 2: The PFBC will collaborate with partners to identify, prioritize, and implement barrier removal projects (e.g., dam removals, culvert replacements) that restore aquatic connectivity and help distribute steelhead further upstream.

Strategy 3: The PFBC will investigate alternative methods for barrier mitigation, such as technical and natural fishways, where barrier removal is not possible or feasible.

Objective 11.2: Implement instream habitat projects that enhance habitat, improve water quality, and expand fishing opportunities. Angling opportunity and fishing experiences can be enhanced by implementing stream habitat improvement projects that increase trout residence time, retain fish to stream reaches that have public access, and create habitat features that can be readily fished by anglers.

Strategy 1: PFBC staff and partners will identify, prioritize, and implement instream habitat projects following the recommendations of the Habitat Improvement Prioritization Workgroup. Project site selection will align with PFBC's fishing access easement program in the region.

Strategy 2: PFBC staff and partners will improve stream and water quality by establishing riparian buffers and stabilizing stream banks to reduce nutrient and sediment loads.

Topic 12: Collect angler use, harvest, opinion, and economic data on Pennsylvania's steelhead, Brown Trout, and Lake Trout fisheries to inform regional and lake-wide management strategies.

Objective 12.1: Conduct a Lake Erie tributary angler opinion survey to evaluate the steelhead and Brown Trout fisheries. An intensive steelhead survey to gauge angler use, harvest, and opinions was last conducted in 2004. There is a need to conduct a similar survey to what was done in 2004 to provide insight to current anglers' catch, harvest, and opinions on Pennsylvania's steelhead fishery to inform management strategies.

Strategy 1: Implement a creel survey to provide insight on angler preferences, determine angler effort, angler trips, catch and harvest by species, and associated economic value of steelhead and Brown Trout fisheries in Lake Erie tributaries.

Objective 12.2: Conduct annual Lake Erie Boat Angler Survey (LEBAS) to evaluate angler catch and harvest on the open lake Brown Trout, Lake Trout, and steelhead fishery. Collecting updated data will inform future management strategies.

Strategy 1: Implement a reoccurring survey to determine angler effort, angler trips, catch and harvest by species, and economic value of Lake Erie's fisheries.

Topic 13: Optimize the production and use of steelhead and Brown Trout.

Objective 13.1: Investigate ways to improve the allocation of steelhead in tributaries to provide high-quality angling opportunities throughout the fall and winter. New allocation rates may provide better steelhead angling opportunities.

Strategy 1: Evaluate current allocation rates and investigate an updated allocation system based on the physical and social attributes of the Lake Erie tributaries stocked with steelhead.

Objective 13.2: Investigate ways to improve fish culture practices and hatchery operations to optimize stocked steelhead and Brown Trout production. Hatchery infrastructure projects will improve water management, fish health, and optimize fish growth.

Strategy 1: Implement projects at steelhead and Brown Trout production hatcheries to improve rearing conditions, hatchery life support systems, and

influent and effluent water qualities that will increase efficiency to meet annual requests for Lake Erie and its tributaries.

Objective 13.3: Investigate ways to improve stockings provided as part of the PFBC's CNP. Cooperative nurseries produce over 74,000 steelhead and 63,000 Brown Trout annually and like inland cooperative nurseries, the CNP program must be optimized.

Strategy 1: PFBC staff will collaborate to determine the best use of cooperative nursery raised steelhead and Brown Trout in the Lake Erie watershed.

Strategy 2: Improve cooperative nursery infrastructure to optimize steelhead and Brown Trout stockings in the Lake Erie watershed.

Strategy 3: Provide technical assistance to cooperative nursery volunteers to maximize the returns of fish raised and stocked.

Strategy 4: Identify and secure resources specific to the Lake Erie watershed cooperative nurseries to utilize for infrastructure projects and new equipment.

Topic 14: Minimize the impacts of AIS in Lake Erie and its tributaries.

Objective 14.1: Improve hatchery operations and infrastructure to prevent occurrences of AIS in our state fish hatcheries. Improvements will allow the PFBC to adhere to the Great Lakes Fish Disease Control Policy and Model Program developed by the Great Lakes Fish Health Committee in all stocking efforts in Lake Erie and its tributaries.

Strategy 1: Install and enhance raceway covers, predation netting, source water protection, ultra-violet water treatment systems, etc., to increase biosecurity at hatchery facilities.

Objective 14.2: Collaborate with federal, state, and local partners to monitor, prevent, and/or control AIS in Lake Erie and its tributaries. Continued sampling in the watershed is important to monitor new occurrences of AIS and potential vectors.

Strategy 1: Periodically monitor Lake Erie and its tributaries for the presence of AIS.

Objective 14.3: Continue efforts with partners to educate anglers, boaters, and other stakeholders on the risks of AIS to aquatic resources and ways to prevent the spread of AIS. Improve and increase efforts to better educate anglers, boaters, and stakeholders on the potential threats of AIS in Lake Erie.

Strategy 1: Increase public awareness and reporting of suspected AIS in Lake Erie and its tributaries through educational outreach.

Objective 14.4: Support or initiate research to evaluate the risks and potential impacts of AIS to Lake Erie and tributaries. Collecting additional data through research projects will continue to build upon the rich dataset studying AIS in the Great Lakes basin.

Strategy 1: Provide technical advisement and support to partners conducting research projects.

Topic 15: Promote Lake Erie's steelhead, Lake Trout, and Brown Trout fisheries and expand stakeholder engagement through collaborative outreach and education efforts.

Objective 15.1: Expand and diversify the PFBC's marketing, outreach, and promotion of Lake Erie's steelhead, Lake Trout, and Brown Trout angling opportunities. Organize statewide and regional campaigns to highlight angling opportunities.

Strategy 1: Expand curriculum to offer developmental fishing technique programs, virtual trainings, and in-person classes to provide anglers with opportunities to enhance fishing skills that target Lake Erie's fisheries.

Strategy 2: Host outreach events for anglers to practice new fishing techniques being developed through the educational programs and virtual trainings.

Objective 15.2: Maximize available Lake Erie salmonid content on the PFBC's website and social media platforms. The statewide Pennsylvania Trout Angler opinion survey conducted in 2023 identified the agency's website as the number one resource trout anglers utilized to find information which includes interactive maps, county guides, best fishing waters, *Pennsylvania's Fishing Summary* book, and additional resources to provide the best information possible to anglers.

Strategy 1: Increase education and outreach on Lake Erie's fisheries and potential impacts of AIS.

Strategy 2: Improve interactive maps, best fishing waters, biologist reports, and additional resources on the agency's website to promote Lake Erie's fisheries.